



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,641	08/18/2003	Mark Munch	COOL-00901	4440

7590 12/12/2005

Thomas B. Haverstock  
HAVERSTOCK & OWENS LLP  
162 North Wolfe Road  
Sunnyvale, CA 94086

EXAMINER
----------

JIANG, CHEN WEN

ART UNIT	PAPER NUMBER
----------	--------------

3744

DATE MAILED: 12/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/643,641

Applicant(s)

MUNCH ET AL.

Examiner

Chen-Wen Jiang

Art Unit

3744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-135 is/are pending in the application.
- 4a) Of the above claim(s) 14-24, 36-46, 58-69 and 71-132 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13, 25-35, 47-57, 70 and 133-135 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 101305.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-13 and 135 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. “[T]he fluid in the inlet and outlet port freezes later than the fluid elsewhere in the heat exchanger, and for freezing to advance towards the one or more compressible objects” and “the heat exchanger is configured so that fluid within the plurality of microchannels freezes before fluid within the outlet port and the inlet port” have not been disclosed in the specification.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 3744

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 25,26,28-35,47,48,50-57,70,133 and 134 are rejected under 35 U.S.C. 102(b) as being anticipated by Oberholzer et al. (U.S. Patent Number 6,119,729).

Oberholzer et al. disclose a freeze protection apparatus. Referring to Figs.1 and 1a, a freeze-protected conduit 10 comprises an elongated conduit 12 for conveying or containing liquid, and an elongated, compressible elastomeric material 14 disposed within the conduit 12. Examples of compressible elastomeric material 14 include foam, rubber, foamed neoprene and silicone sponge rubber. Preferably, the compressible elastomeric material 14 is fully sealed on all its sides and ends by a liquid impermeable membrane 18 to form an insert 20 which is disposed inside of conduit 12. It is noted that Oberholzer et al. disclose “preferably” to have membrane means the membrane is optional in the system. A choice for membrane material is a thin metal foil coated with a protective layer such as a plastic film. Another preferred choice is a thin, flexible, plastic membrane materials include polyester and fluoropolymers. Referring to Figs.6 and 7, heat exchanger 50 has supply header 68 (inlet chamber), discharge header 72 (outlet chamber) and collectors 56. Every fluid system in solar collector 50 may be adapted for use with the freeze protection apparatus of the apparatus. Referring to Fig.1, preferably insert 20 is disposed along the axis of conduit, particularly where conduit 12 is used in heat transfer application. Therefore, the fluid begins to freeze on the conduit and advance toward the insert 20. Under the principals of inherency, if a prior art device, in its normal and usual operation, would necessarily perform the method claimed, then the method claimed will be considered to be anticipated by the prior art device. When the prior art device is the same as a device described in

the specification for carrying out the claimed method, it can be assumed the device will inherently perform the claimed process.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 27 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oberholzer et al. (U.S. Patent Number 6,119,729).

The reference discloses the compression calculation claimed except for the 5 to 25 percent of the amount of fluid expansion. It is not patentable, however, to discover the optimum of workable ranges of the expansion by routine experimentation. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955), MPEP Section 2144.05(IIA).

8. Claims 27 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oberholzer et al. (U.S. Patent Number 6,119,729) in view of Mihara (JP 10099592 with machine English translation).

The reference discloses the compression calculation claimed except for the 5 to 25 percent of the amount of fluid expansion. Mihara disclose a method and apparatus to prevent a pump from being damaged due to the freezing of water by incorporating a freely compressible body in a chamber of the pump. The freely compressible hollow part 32 is incorporated into the pump chamber 1 absorbs the expansion in volume of ice to eliminate the pressure on the inner

Art Unit: 3744

wall of the pump. The hollow part 32 is formed by foam which can be contracted freely. The ratio of the hollow part 32 volume to the pump chamber volume is made about 10% or more. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the apparatus of Oberholzer et al. with an expansion in view of Mihara so as to absorption of fluid expansion between 5-25%.

### *Conclusion*

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chen-Wen Jiang whose telephone number is (571) 272-4809. The examiner can normally be reached on Monday-Thursday from 8:00 to 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Melba Bumgarner can be reached on (571) 272-4709. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chen-Wen Jiang  
Primary Examiner

